

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

1. (Previously Presented) Device for protecting a bearing of an electrical machine against damaging passage of current, wherein the electrical machine comprises a stator and a rotor pivotally mounted relative to the stator by the bearing, the device comprising:

a compensation circuit for producing a compensation current which compensates for a parasitic current arising during operation of the electrical machine and passing through the bearing, the compensation current has a corresponding magnitude as the parasitic current but opposite in phase to the parasitic current; and

a coupling element for direct or indirect coupling of the compensation current into the bearing.

2. (Original) The device according to Claim 1, wherein the compensation circuit comprises an artificial star point which prepares a star point voltage at which phase voltages for operation of the electrical machine are found.

3. (Original) The device according to Claim 2, wherein the artificial star point is formed by three identical impedances.

4. (Original) The device according to Claim 3, wherein the compensation circuit also comprises a polarity reversal transformer having a primary side to which the star point voltage is supplied at least in part and a secondary side which produces a voltage opposite in phase to the star point voltage.

5. (Original) The device according to Claim 4, wherein the compensation circuit also comprises an amplitude matching stage connected between the artificial star point and the polarity reversal transformer, the amplitude matching stage applying an adjustable fraction of the star point voltage to the polarity reversal transformer.

6. (Original) The device according to Claim 5, wherein the polarity reversal transformer has several winding taps on the secondary side.

7. (Original) The device according to Claim 6, wherein the polarity reversal transformer is connected on the secondary side to an input of a frequency response matching stage which equalizes a frequency response of the compensation current to the parasitic current.

8. (Original) The device according to Claim 7, wherein an output of the frequency response matching stage is connected to the coupling element.

9. (Original) The device according to Claim 8, wherein the coupling element is arranged such that coupling of the compensation current takes place into a rotor shaft of the rotor by which the rotor in the bearing is pivotally mounted.

10. (Original) The device according to Claim 9, wherein the coupling element is a capacitor.

11. (Original) The device according to Claim 2, wherein the compensation circuit also comprises a polarity reversal transformer having a primary side to which the star point voltage is supplied at least in part and a secondary side which produces a voltage opposite in phase to the star point voltage.

12. (Original) The device according to Claim 11, wherein the compensation circuit also comprises an amplitude matching stage connected between the artificial star point and the polarity reversal transformer, the amplitude matching stage applying an adjustable fraction of the star point voltage to the polarity reversal transformer.

13. (Original) The device according to Claim 11, wherein the polarity reversal transformer has several winding taps on the secondary side.

14. (Original) The device according to Claim 11, wherein the polarity reversal transformer is connected on the secondary side to an input of a frequency

response matching stage which equalizes a frequency response of the compensation current to the parasitic current.

15. (Original) The device according to Claim 14, wherein an output of the frequency response matching stage is connected to a coupling element.

16. (Original) The device according to Claim 15, wherein the coupling element is arranged such that coupling of the compensation current takes place into a rotor shaft of the rotor by which the rotor in the bearing is pivotally mounted.

17. (Original) The device according to Claim 15, wherein the coupling element is a capacitor.

18. (Previously Presented) Device for protecting a bearing, which supports a rotor of an electrical machine, against passage of parasitic current arising from operation of the electrical machine, the device comprising:

means for producing a compensation current corresponding in magnitude to the parasitic current but opposite in phase to the parasitic current, and
coupling means for coupling the compensation current into the rotor.

19. (Original) The device according to Claim 18, wherein the means for producing compensation current comprises an artificial star point which prepares a star point voltage at which phase voltages for operation of the electrical machine exist.

20. (Previously Presented) The device according to Claim 19, wherein the means for producing compensation current also comprises a polarity reversal transformer having one side to which the star point voltage is at least partly supplied and a second side which produces a voltage opposite in phase to the star point voltage.

21. (Previously Presented) The device according to Claim 20, wherein the means for producing compensation current also comprises an amplitude matching stage connected between the artificial star point and the polarity reversal transformer, the amplitude matching stage applying an adjustable fraction of the star point voltage to the polarity reversal transformer.

22. (Original) The device according to Claim 18, wherein the coupling means couples the compensation current to the bearing element either directly or indirectly.